NOTES, ABSTRACTS, AND REVIEWS.

A CORRECTION.

A correspondent calls the attention of the Editor to certain inaccuracies in the article "R. L. S. As Meteorologist" which appeared in the MONTHLY WEATHER REVIEW, February, 1921, page 92. It is pointed out (1) that the residence of Stevenson in San Francisco was in a house on Powell Street near Bush and not in a house fronting on Portsmouth Square; (2) the article seems to imply that the monument in Portsmouth Square is the only one to Stevenson in the United States, whereas there is at least one other (at Calistoga, Calif.); (3) according to standard editions of Stevenson's works the quotation "Home is the wanderer, home from the sea" should read "Home is the sailor, home from sea."—EDITOR.

Death of Dr. Julius Von Hann.

It is with profound regret that meteorologists in all parts of the world will receive the announcement of the death of Dr. Julius von Hann, former director of the Zentralanstalt für Meteorologie und Geodynamik, at Vienna. The notice just received from the Osterreichische Gesellschaft für Meteorologie, states that Dr. von Hann died at his home in Vienna on October 1, after long illness. It will be recalled that after the war he, as well as other Austrian meteorologists, were reported to be in dire need, and, in this country, the American Meteorological Society promptly responded to the call for aid, sending assistance to the workers of the Zentralanstalt and to Dr. von Hann in particular. Although as yet, no information is available concerning the circumstances of his death, it is presumed that his advanced age (this being his 83d year), and the hardships that he has been obliged to undergo in the last several years were direct contributors. In the face of these facts, it is the more remarkable that he continued to write and publish scientific papers.

It is unnecessary to mention the many valuable papers containing results of careful and painstaking investigations, the important *Meteorologie* and *Klimatologie*, of which he was the author, or the *Meteorologische Zeitschrift*, of which he was an editor and founder, for they are known to all readers and students of meteorology; nor is it necessary to dwell upon the magnitude of the circle of influence that he commanded when it required 10 long lines of very small type in the notice of his death to list the abbreviated names of organizations, in all parts of the world, of which he was a member, the important positions he has held, and the honors he has received. Indeed, the statement—

> Ein Leben ununterbrochener Geistesarbeit und reinster Forschung im Dienste der Wissenschaft ist abgeschlossen. Aber ungezählte Fäden führen von Hann's Werken in alle Lander der Erde und wirken in seinem Sinne fort.

will be received with universal approval.—*C. L. M.*

Death of Director Carbonell of the National Observatory of Cuba.

Dr. Luis Garcia y Carbonell, director of the National Observatory of Cuba, died in Habana on October 11, 1921. Dr. Carbonell has occupied this position since 1905, and has cooperated during this period with the United States Weather Bureau in the collection of meteorological information. He was just entering upon his eighty-second year, his death occurring the day following his eighty-first birthday.

At this writing the only notice regarding his successor is an unofficial news item which states that Dr. José G. Millas, has been appointed. Dr. Millas is well known in the United States, having done astronomical work at the Yerkes Observatory of the University of Chicago, and at the Naval Observatory at Washington.—*C. L. M.*

THE INFLUENCE OF THE ALPS ON PRESSURE OVER THE MEDITERRANEAN SEA.[1]

551.54 (234.3) (262)

By HEINRICH FICKER.

When it is observed from charts of mean pressure distribution over Europe for two successive days that the center of an extensive depression moves from the Atlantic Ocean to a region east of Scandinavia, and when other conditions are favorable, there occurs typical development of a secondary depression south of the Alps, which formation is seen to replace a previously existing wedge-shaped area of high pressure.

This secondary minimum is explained by continuance of pressure fall south of the Alps until the passage of the axis of a "primary" pressure formation (depression) in the upper atmosphere, while north of the Alps pressure generally begins to rise with the earlier passage of the "squall line." It is assumed that the pressure wave of such a primary formation is not influenced by mountains and that its amplitude increases toward the earth in proportion to the increase in pressure. On the other hand, with sufficient height of the mountain the "secondary," thermal-advective wave—inrush of cold air, in reference to which the term squall line is used—has influence only on its windward side. Obviously the pressure contrast is greatest when the cold air reaches barely to the crest of the mountain; then on one side the pressure wave is purely primary, while on the other it is "composite" with marked intensity in the thermally produced, secondary element.

The existence of a secondary wave is proven when the rate of decrease in amplitude of pressure change with elevation is greater or less than the rate of decrease in observed pressure. With marked pressure fall south of the Alps reduction of pressure at stations on southern side, northern side, and summit to the elevation of the latter shows like fall for southern side and summit, less fall for the northern side. The secondary, thermal pressure wave, whose effect is to counteract the primary fall, has not reached the southern side of the Alps; the primary wave is "isolated" there.

This isolation of the primary wave is a relatively rare phenomenon, characteristic of a certain stage of development only; when the rising cold air overflows to the southern side in considerable volume the thermal wave begins to fill the secondary low pressure area, but this is not well effected until after the passage of the axis of the primary depression of the upper strata.

The center of this secondary minimum forming suddenly at the western end of the Alps, over the Gulf of Genoa, shifts eastward with lessening depth. It moves to the eastern end of the Alps and with the termination of the sheltering effect of the Alps disappears east of the

[1] Der Einfluss der Alpen auf Fallgebiete des Luftdruckes und die Entstehung von Depressionen über dem Mittelmeer. *Meteorologische Zeitschrift*, Dec., 1920, 37: 350–363.

Adriatic Sea. By far the greater number of Mediterranean depressions belong to this group; those approaching from the west as independent formations and those of the origin here discussed that change into long continuing depressions and move into Hungary are relatively few.

The wedge of high pressure, and not the pocket of low pressure encroaching on the Mediterranean Sea, is the disturbance feature of the first day. This, also, results from the isolating influence of the Alps. North of these mountains the depression is advancing with characteristic falling pressure and rising temperature at its front. At the south temperature conditions do not change; the mountains obstruct flow of air to the northwestern depression and there is no thermal pressure wave—the primary wave is isolated. With horizontal supply of air from the south thus cut off the regions north of the Alps fill with air from aloft. This has potentially higher temperature and in its descent produces foehn effects and adds intensity to the primary pressure wave.—*W. W. Reed.*[2]

NOTE.

Reference to weather maps for November 3, 7, 8, 10, 15, 16, 17, 26, 1917 shows that a deformation of isobars similar to that given in figure 4 of the paper (*Met. Zeit.* Dec. 1920, p. 3 5), is found south of the Appalachian Mountains (vicinity of Atlanta, Ga.), when an area of high pressure is approaching.

This may be due to an isolation of "primary wave of pressure," although it occurs with increasing pressure whereas the isolation occurs with diminishing pressure in the region of the Alps.

Mention is made of this since it may be thought interesting to note this in connection with the abstract above.—*W. W. R.*

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FORECASTING THE CROPS FROM THE WEATHER.

By R. A. HOOKER.

[Excerpts from the *Quarterly Journal of the Royal Meteorological Society*, April, 1921. 47: 75-93.]

There are two main lines of research which have attracted the attention of trained scientific men in the investigation of the conditions which induce good or bad crops. These two lines are firstly, the determination of a cycle of a definite number of years at the end of which similar meteorological and, as a consequence, agricultural, phenomena are reproduced; and secondly, the effects of different types of weather during or shortly before the growing season of the crops.

Concerning the first method I shall say but little, not because I wish to be regarded as skeptical of its practicability but because I am insufficiently versed in the matter. The second line of research consists in comparing deviations of the crops from the average with precedent deviations of various meteorological phenomena from the normal.

Early students were handicapped by lack of data concerning the crops and many of the crops were merely listed as "good" or "bad" thus making accurate summarization impossible.

The beginning of this branch of study started with the inquiry of Gilbert and Lawes, in 1880, of the relationships between the winter rainfall and the yield of wheat the subsequent autumn. They concluded, on the strength of 14 years data, that seasons of highest productiveness were characterized by higher than average temperatures during most of the winter and early spring, and a prevailing deficiency of rain in winter and spring.

An advance in scientific procedure is to be marked when actual statistics of crops begin to be available in sufficient quantity. Sir Rawson W. Rawson, in examining the relation between the rainfall and the sugar crops on the island of Barbados, found that for every inch of rainfall during the preceeding year, a yield of 800 hogsheads of sugar in the whole island [the area having been fairly constant for some years]. Thus he proposed to predict the crops by multiplying the preceding years rainfall by 800.

England is far behind in "agricultural meteorology" although other countries have not advanced very far. The first author I mention outside England is S. M. Jacobs of the Indian Meteorological Society. In 1910, he published a paper in which he correlates the area of unirrigated "matured" autumn and spring crops with the rainfall of the preceding six months, obtaining various coefficients ranging up to + 0.73 between the spring crop and rain in the preceding winter. This work does not take any one crop but all the crops combined.

Mr. Jacobs in his second paper marks an advance upon his earlier one, mainly in two directions; he now deals with individual crops and he utilizes Kincer's method of dealing with crops suspected of being grown under optimum conditions.

Among the results obtained in the second paper are the following: (1) The area sown with "well-irrigated" wheat in Jullundur is closely correlated, negatively, with the rainfall of August, September, and October, partial coefficients of −0.79, −0.86, and −0.74 respectively being found. (2) With unirrigated spring crops [taken together], the correlation coefficient is high and positive, September +0.74 thus a dry season leads to a reduction in the area of spring crops. (3) Turning to yield Jacobs correlates the deficiency below normal of "well-irrigated" wheat with the rainfall of various months. (4) With unirrigated wheat he gets regression equations which furnish a fair estimate only. He accordingly suspects that the conditions on such land are nearly optimum, and, following Kincer, weights the rainfall for each month with certain factors found empirically. Correlating this weighted rainfall with the area of unirrigated wheat, he obtains a coefficient of +0.91. This almost amounts to proof that, as far as regards precipitation, the climate of Jullundur is practically of optimum for wheat.

This work of correlating weather and crops is of paramount importance; to anticipate, with a reasonable degree of probability, a type of weather known to be injurious to crops will save many dollars.

The determination of the relationships between a crop and the weather ought to lead to the immediate application of the knowledge required to practical uses. But I have yet to find that the results obtained have hitherto been put to any such use, obvious and instant though the application may appear to be.

[2] Translation by Mr. W. W. Reed is on file in the Weather Bureau Library.